Based on the production volume for NCS, [redacted] the target product, estimated to be [redacted] for the first and third year, respectively.

The NCS is made from two intermediates, [redacted] via hydrosilylation on Pt/silica catalyst. The 100% NCS will be stored in tanks or drums, and used as an additive to Momentive solventless release coatings formulations. It will be added to the existing grades at [redacted] via ratiometric metering into the mixer. The commercial products containing [redacted] of the NCS will be sold to customers in the US [redacted] and outside of the US [redacted].

[redacted]

[redacted]

Per year:

[redacted] batches per year, [redacted] per batch; used at [redacted] in a commercial product which is packed in 200 kg drums; [redacted] drums/year. Half of that amount is expected to be exported; for the US customers the planned use is [redacted] of the final product, [redacted].

Worker Exposure Assessment

As currently planned, the manufacture and processing of the target [redacted] will occur exclusively at [redacted] manufacturing site located in [redacted]. It will take place in a closed system that is located in a manufacturing area serviced by local exhaust ventilation. Operators will obtain in-process samples using a self-contained and vented sampling system. QC laboratory personnel will use exhaust hoods when preparing samples and will follow analytical methods that have been developed to maximize safety and minimize exposure.

[redacted] plant personnel involved with the manufacture and processing of [redacted] are trained and experienced in handling hazardous materials, such as the various organosilane and alkoxysilane raw materials, intermediates and products. They are required to use personal protective equipment (PPE) and follow all safety recommendations as specified in the SDS and Operating Instructions. The personnel protective equipment includes safety helmet and shoes, gloves and goggles. The workers are also trained in emergency procedures in the event of an unexpected exposure, accidental release, spill, or fire. Considering the low volatility of [redacted], the proper use of PPE, and closed operating equipment, the potential for dermal or inhalation exposure to the [redacted] will be effectively eliminated.

Exposure, Activity A, Reaction charges: no NCS present

Exposure, Activity B, Transfer to the evaporator:

[redacted] workers will utilize dedicated chemical transfer pumping equipment to transfer [redacted] from the reactor where hydrosilyation takles place into the thin film evaporator (TFE) for devolatilization. Transfer is made utilizing pumps, dedicated lines, and localized ventilation systems minimize the potential for personnel exposure. Personal protective equipment as specified in the SDS is worn to avoid skin and eye contact with [redacted] and the proper ventilation eliminates inhalation exposure. As a result, the impact on worker exposure is expected to be negligible

Exposure, Activity C, Transfer to Storage Tanks or Drums:

Transfer is made utilizing pumps, dedicated lines, and localized ventilation systems minimize the potential for personnel exposure. For drum transfers, a diaphragm pump or piston type drum pump will be typically used in conjunction with a suitable length dip-tube configured to the drum. The drum is placed in corresponding pumping equipment, opened, and then fitted with the pump and sealed. For a regular worker, the connection and disconnection of metering equipment would take no more than several minutes. Let's presume 30 min per batch. Personal protective equipment as specified in the SDS is worn to avoid skin and eye contact with [redacted] and the proper ventilation eliminates inhalation exposure. As a result, the impact on worker exposure is expected to be negligible

Exposure, Activity D, Transfer of [redacted] to the mixer to be formulated into the final commercial product:

Transfer is made utilizing dedicated metering equipment, and localized ventilation systems minimize the potential for personnel exposure. Personal protective equipment as specified in the SDS is worn to avoid skin and eye contact with [redacted] and the proper ventilation eliminates inhalation exposure. As a result, the impact on worker exposure is expected to be negligible.

Exposure, Activity E, filtration and drumming of the commercial product

Transfer is made utilizing dedicated metering equipment, and localized ventilation systems minimize the potential for personnel exposure. Personal protective equipment as specified in the SDS is worn to avoid skin and eye contact with the final product, and the proper ventilation eliminates inhalation exposure. Considering the low concentration of the NCS in the final product, the impact on worker exposure at this activity is expected to be negligible.

PPE: chemical resistant gloves and clothing, protective eyewear, hard hats, safety shoes
Engineering controls: proper ventilation, spill containment; closed systems for material transfer, liquid, where possible

Release point 1, In-Process Sampling and Associated Waste Disposal:

For purposes of quality control and to determine reaction completion, the polymer is sampled periodically. Operators wear the appropriate PPE as specified in the SDS and obtain in-process samples of the resin mix utilizing an appropriate sample system and method (e.g., typically a self-contained, closed loop vented sampling system design). QC laboratory personnel wear PPE and use exhaust hoods when preparing samples, and follow analytical methods that have been developed to maximize safety and minimize exposure to the analyst. Typical sample size is small, usually <4 ounces. Sample wastes are collected for off-site incineration.

Release point 2, Process Equipment Clean-up and Associated Waste Disposal:

Process equipment which is in contact with the [redacted] is cleaned occasionally such as in the preparation for maintenance activities. In these cases solvent rinsing of internal reaction equipment and lines may be required and the waste solvents collected for recycle or sent off-site for incineration. PPE as specified by the SDS is worn by all workers involved with clean-up operations and equipment maintenance activities. Exposure and environmental impact from the [redacted] during clean-up operations therefore is expected to be negligible.

The metering equipment between batches will be washed with organic solvent with subsequent solvent incineration.